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EXAMINER	
THOMPSON, JAMES A	

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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/772,664	OHASHI, KAZUHITO	
	Examiner	Art Unit	
	James A. Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *37-72 and 74-86* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-72 and 74-86* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 September 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed 29 September 2005 have been fully considered but they are not persuasive.

Regarding page 14, line 19 to page 15, line 15: Firstly, "the difference between the signal levels owing to difference in characteristics of the respective output channels", which is alleged by Applicant to not be taught by Arimoto (US Patent 5,371,613), is not recited in the present claims. Claim 37 recites *inter alia* "an adjustment unit adapted to adjust levels of the image signals output from said output channels so as to substantially correspond with said first reference level when said image sensor reads said white member, adjust levels of the image output from said output channels so as to substantially correspond with said second reference level when said image sensor reads said reference density member, and adjusts level of the image signals output from said output channels so as to substantially correspond with a level obtained by interpolating between said first and said second reference levels when said

image sensor reads an image having a density other than the density of said white member and said reference density member." There is nothing in the claim recitation that corresponds to "the difference between the signal levels owing to difference in characteristics of the respective output channels". What claim 37 recites is that the levels of the image signals output from said output channels are adjusted so as to correspond to either said first reference level, said second reference level, or an interpolated value between said first reference level and said second reference level, depending upon particular criteria. Applicant is respectfully reminded that, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Secondly, Arimoto has not been relied upon to teach the limitation "an image sensor which separately outputs image signals of a plurality of photoreceptive pixel from a plurality of output channels". Furthermore, said limitation is part of the present amendments to the claims, and not the claims as previously presented immediately prior to the previous office action, dated 08 June 2005 and mailed 29 June 2005. Thus, said limitation is properly discussed below in the prior art rejections since new grounds of rejection are given for the present claims, said new grounds of rejection being necessitated by the present amendments to the claims.

Regarding page 15, line 16 to page 16, line 13: As explained on page 10, lines 19-26 of said previous office action, placing a piece of digital data into computer memory inherently requires some form of output channel. Otherwise, there is no means by which the obtained digital data can be

placed in memory. Furthermore, as discussed in more detail below, the pixel image data from the CCDs (column 5, lines 50-52 and lines 58-65 of Orito) are all transferred using parallel transfer communication, and are thus transferred using a plurality of output channels. Since the arguments in this section are largely concerned with the present amendments to the claims, said arguments will be further addressed below in the prior art rejections.

Regarding page 16, line 14 to page 17, line 18: The remaining claims in the present application are discussed in detail below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 37-41, 44-46, 48-55, 57-58, 60, 62-66, 69-71, 74-77, 79-80, 82-83 and 85-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimoto (US Patent 5,371,613) in view of Orito (US Patent 6,072,912) and Sawada (US Patent 5,912,992).

Regarding claims 37, 62 and 86: Arimoto discloses an image sensing apparatus (figure 2 of Arimoto). Figure 1 and figure 3 of Arimoto show further details of said apparatus (column 3, lines 3-5 and lines 8-10 of Arimoto).

Arimoto further discloses an image sensor (figure 1(210) of Arimoto) which outputs image signals (column 4, lines 56-58 of Arimoto) of a plurality of photoreceptive pixels (CCD) from an output channel (column 4, lines 53-56 of Arimoto); a reference level acquisition unit (figure 1(106(portion)) of Arimoto) adapted to acquire a first reference level based on the image signals output from said output channel when said image sensor reads a white member (column 6, lines 44-49 of Arimoto), and acquire a second reference level based on the image signal output from said output channel when said image sensor reads a reference density member having a predetermined density of halftone (column 6, lines 26-34 of Arimoto); and an adjustment unit (figure 1(106(portion)) of Arimoto) adapted to adjust levels of the image signals output from said output channel so as to substantially correspond with said first reference level when said image sensor reads said white member (column 7, lines 48-55 of Arimoto), and adjust levels of the image output from said output channel so as to substantially correspond with said second reference level when said image sensor reads said reference density member (column 9, lines 52-56 and column 10, lines 1-4 of Arimoto).

The reference level acquisition unit and adjustment unit each correspond to the portion of the physically embodied computer routines that causes the computer to perform the functions of said reference level acquisition unit and said adjustment unit.

Arimoto does not disclose expressly that said image sensor separately outputs image signals of a plurality of photo-receptive pixels from a plurality of output channels. Since two separate reference levels are used by said adjusting unit to

adjust the image data, it would be reasonable to assume that said adjustment unit adjust levels of the image signals output from said output channel so as to substantially correspond with a level obtained by interpolating between said first and said second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member. However, Arimoto does not disclose expressly that said adjustment unit adjust levels of the image signals output from said output channel so as to substantially correspond with a level obtained by interpolating between said first and said second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

Orito discloses separately outputting image signals of a plurality of photoreceptive pixels from a plurality of output channels (column 5, lines 9-14 of Orito). By transferring the image data in parallel (column 5, lines 9-14 of Orito), a plurality of output channels are used to separately output image signal of the plurality of photoreceptive pixels.

Arimoto and Orito are combinable because they are from the same field of endeavor, namely correcting digital tone data in digital image scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process and adjust the image data based on said reference member, as taught by Arimoto, using parallel data transfer, as taught by Orito. There would therefore be a plurality of output terminals accessed by said reference level acquisition unit and said adjustment unit. The suggestion for doing so would have been that parallel data transfer is a standard form of communication interface (column 5, lines 8-14 of Orito).

Therefore, it would have been obvious to combine Orito with Arimoto.

Arimoto in view of Orito does not disclose expressly that said adjustment unit adjust levels of the image signals output from said output channel so as to substantially correspond with a level obtained by interpolating between said first and said second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

Sawada discloses using interpolation to determine image data values that are not located at a sample point (column 4, lines 25-28 of Sawada).

Arimoto in view of Orito is combinable with Sawada because they are from the same field of endeavor, namely digital image data processing and correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use interpolation to interpolate image data values when said image data is between predetermined points, as taught by Sawada, said image data values being the image signal levels output from said plurality of output channels and said interpolation being performed by said adjustment data acquisition unit to match said levels that are between said first and second predetermined levels. The motivation for doing so would have been to improve the accuracy of the image pixel reproduction (column 2, lines 23-29 of Sawada). Therefore, it would have been obvious to combine Sawada with Arimoto in view of Orito to obtain the invention as specified in claims 37, 62 and 86.

Further regarding claim 62: The apparatus of claim 37 performs the method of claim 62.

Further regarding claim 86: Arimoto discloses that the operations of said apparatus are performed using computer-readable program code (column 5, lines 20-23 of Arimoto).

Regarding claims 38 and 63: Arimoto discloses that said reference density member (figure 3(301P) of Arimoto) is provided within the image sensing apparatus (column 6, lines 22-26 of Arimoto).

Regarding claims 39 and 64: Arimoto discloses a platen (figure 3(15) of Arimoto) for placing an original to be read (column 5, lines 40-43 of Arimoto), wherein said image sensor reads said reference density member (column 6, lines 41-43 of Arimoto) in a case where said reference density member is placed on said platen (column 6, lines 26-30 of Arimoto).

Regarding claims 40 and 65: Arimoto discloses that at least one of the first and second reference levels is set in advance (column 6, lines 26-31 of Arimoto). The reference patch (figure 3(301P) of Arimoto) is set to a predetermined level (0.1) (column 6, lines 26-31 of Arimoto) and used as a reference level for the shading correction (column 6, lines 42-43 of Arimoto).

Regarding claims 41 and 66: Arimoto does not disclose expressly that said first reference level is an average of signal levels when said white member is scanned.

Orito discloses a predetermined level (W1) (column 7, lines 45-50 of Orito) which is an average of signal levels when a white member is scanned (column 8, lines 50-57 of Orito).

Arimoto and Orito are combinable because they are from the same field of endeavor, namely scanned digital tone data correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to scan said

white member to obtain an average of signal levels to store as said reference level, as taught by Orito, said reference level being said first reference level taught by Arimoto. The motivation for doing so would have been to obtain the data needed to perform white level correction (column 4, lines 3-8 of Orito). Therefore, it would have been obvious to combine Orito with Arimoto to obtain the invention as specified in claims 41 and 66.

Regarding claims 44 and 69: Arimoto discloses that the signal level value for the reference member (figure 3(301P) of Arimoto) is uniform and unchanging over the area of said reference member (column 6, lines 38-43 of Arimoto). Therefore, said second reference level is an average of signal levels when said reference density member is scanned, since said average is equal to said uniform signal level value.

Regarding claims 45 and 70: Arimoto discloses that the signal level value for the reference member (figure 3(301P) of Arimoto) is uniform and unchanging over the area of said reference member (column 6, lines 38-43 of Arimoto). Therefore, said second reference level is a maximum of signal levels when said reference density member is scanned, since said maximum is equal to said uniform signal level value.

Regarding claims 46 and 71: Arimoto discloses that the signal level value for the reference member (figure 3(301P) of Arimoto) is uniform and unchanging over the area of said reference member (column 6, lines 38-43 of Arimoto). Therefore, said second reference level is a minimum of signal levels when said reference density member is scanned, since said minimum is equal to said uniform signal level value.

Regarding claim 48: Arimoto discloses that said adjustment unit acquires adjusts maximum levels of image signals so that they become maximum levels after adjustment (column 10, lines 5-10 of Arimoto). After said adjustment by said adjustment unit (column 9, lines 52-56 and column 10, lines 1-4 of Arimoto), the output pixel values that are set to 255 (the maximum value for eight bits) based on the normalization with respect to the standard white plate density measurement (column 10, lines 5-10 of Arimoto).

Regarding claims 49 and 74: Arimoto in view of Orito does not disclose expressly that the levels between said first and second reference levels are interpolated by a straight line.

Sawada discloses using interpolation to determine image data values that are not located at a sample point (column 4, lines 25-28 of Sawada), said interpolation being linear interpolation (column 4, lines 30-31 of Sawada), and thus interpolation by a straight line.

Arimoto in view of Orito is combinable with Sawada because they are from the same field of endeavor, namely image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use linear interpolation to interpolate image data values when said image data is between predetermined points, as taught by Sawada. The motivation for doing so would have been to improve the accuracy of the image pixel reproduction (column 2, lines 23-29 of Sawada). Therefore, it would have been obvious to combine Sawada with Arimoto in view of Orito to obtain the invention as specified in claims 49 and 74.

Regarding claims 50 and 75: Arimoto in view of Orito does not disclose expressly that the levels between said first and second predetermined levels are interpolated by a curve.

Sawada discloses using interpolation to determine image data values that are not located at a sample point (column 4, lines 25-28 of Sawada), said interpolation being performed using a curve (column 4, lines 31-34 of Sawada).

Arimoto in view of Orito is combinable with Sawada because they are from the same field of endeavor, namely image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use curve interpolation to interpolate image data values when said image data is between predetermined points, as taught by Sawada. The motivation for doing so would have been to improve the accuracy of the image pixel reproduction (column 2, lines 23-29 of Sawada). Therefore, it would have been obvious to combine Sawada with Arimoto in view of Orito to obtain the invention as specified in claims 50 and 75.

Regarding claims 51 and 76: Arimoto in view of Orito does not disclose expressly that interpolation is performed by operation.

Sawada discloses using interpolation to determine image data values that are not located at a sample point (column 4, lines 25-28 of Sawada), said interpolation being performed by operations, such as linear interpolation operations and curve interpolation operations (column 4, lines 30-34 of Sawada).

Arimoto in view of Orito is combinable with Sawada because they are from the same field of endeavor, namely image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the

interpolation using operations, as taught by Sawada. The motivation for doing so would have been to improve the accuracy of the image pixel reproduction (column 2, lines 23-29 of Sawada). Therefore, it would have been obvious to combine Sawada with Arimoto in view of Orito to obtain the invention as specified in claims 51 and 76.

Regarding claims 52 and 77: Arimoto discloses that said adjustment data is in a form of a look up table (figure 1(112') and column 60-67 of Arimoto).

Further regarding claim 53: Orito discloses separately outputting image signals of a plurality of photoreceptive pixels from a plurality of output channels (column 5, lines 9-14 of Orito). Since the image data is transferred in parallel (column 5, lines 9-14 of Orito), there are a plurality of output channels used to separately output image signal of the plurality of photoreceptive pixels. A plurality of output channels is clearly at least two output channels, therefore said plurality of output channels comprises a first output channel and a second output channel. Since there is no particular order to the output of the photoreceptive pixels, then both said first output channel and said second output channel would each output even-numbered photoreceptive pixels, though said first output channel and said second output channel would also output odd-numbered photoreceptive pixels. Thus, said plurality of output channels comprises a first output channel which outputs image signals of even-numbered photoreceptive pixels, and a second output channel which outputs image signals of even-numbered photoreceptive pixels.

Regarding claims 54 and 79: Arimoto discloses that said image sensor is a linear image sensor (column 4, lines 53-56 of Arimoto).

Regarding claims 55 and 80: Arimoto discloses that a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor (column 19, line 65 to column 20, line 1 of Arimoto).

Regarding claims 57 and 82: Arimoto discloses that each of said plurality of signal processing units includes an amplifier (figure 1(101) of Arimoto) for amplifying the image signal output from each of the output channels (column 5, lines 1-2 of Arimoto).

Regarding claims 58 and 83: Arimoto discloses an A/D converter (figure 1(102) of Arimoto) adapted to convert the image signal output from each of the output channels from an analog signal to a digital signal (column 5, lines 2-3 of Arimoto).

Since Arimoto in view of Orito teaches a plurality of output channels, as discussed in the arguments regarding claims 37, 62 and 86, Arimoto in view of Orito therefore teaches a plurality of A/D converters, each adapted to convert the image signal output from each output channel from an analog to a digital signal. Since there are multiple output channels, multiple A/D converters are required, one for each output channel.

Regarding claims 60 and 85: Arimoto discloses that said reference density member has at least a portion of uniform density (column 6, lines 37-43 of Arimoto).

5. Claims 42-43, 47, 56, 67-68, 72 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimoto (US Patent 5,371,613) in view of Orito (US Patent 6,072,912), Sawada (US Patent 5,912,992), and Irie (US Patent 5,644,409).

Regarding claims 42 and 67: Arimoto in view of Orito and Sawada does not disclose expressly that said first reference level is a maximum of signal levels when said white member is scanned.

Irie discloses using the maximum (WMAX2) of the obtained signal levels (column 7, lines 26-30 of Irie) for performing white level correction (column 8, lines 22-25 of Irie).

Arimoto in view of Orito and Sawada is combinable with Irie because they are from the same field of endeavor, namely digital image data correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the maximum of the obtained signal levels, as taught by Irie, instead of the average, as taught by Orito. The motivation for doing so would have been to be able to perform white level correction for a case when the white member is not dirty as a whole, but partially dirty (column 8, lines 23-25 of Irie). Therefore, it would have been obvious to combine Irie with Arimoto in view of Orito and Sawada to obtain the invention as specified in claims 42 and 67.

Regarding claims 43 and 68: Arimoto in view of Orito and Sawada does not disclose expressly that said first reference level is a minimum of signal levels when said white member is scanned.

Irie discloses using the minimum (WMAX1) of the obtained signal levels (column 7, lines 21-25 of Irie) for performing white level correction (column 8, lines 15-21 of Irie).

Arimoto in view of Orito and Sawada is combinable with Irie because they are from the same field of endeavor, namely digital image data correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the minimum of the obtained signal levels, as taught by Irie, instead of the average, as taught by Orito. The motivation for doing so would have been to be able to perform white level correction for a case when the white member is not dirty (column 8, lines 16-17 of Irie). Therefore, it would have been obvious to combine Irie with Arimoto in view of Orito and Sawada to obtain the invention as specified in claims 43 and 68.

Regarding claims 47 and 72: The limitations disclosed in claims 47 and 72 comprise the limitations disclosed in claims 42 and 67 and the limitations disclosed in claims 46 and 71. Therefore, the arguments regarding claims 42 and 67 and the arguments regarding claims 46 and 71 are incorporated herein.

Regarding claims 56 and 81: Arimoto in view of Orito and Sawada does not disclose expressly that said image sensor is an area image sensor.

Irie discloses an area image sensor (figure 1(1) and column 5, lines 29-32 of Irie).

Arimoto in view of Orito and Sawada is combinable with Irie because they are from the same field of endeavor, namely digital image data correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an area image sensor, as taught by Irie, for the image sensor taught by Arimoto. The motivation for doing so would have been to be able to read data two-dimensionally (column 5, lines 31-32 of Irie). Therefore, it would have been obvious to

combine Irie with Arimoto in view of Orito and Sawada to obtain the invention as specified in claims 56 and 81.

6. Claims 59, 61 and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimoto (US Patent 5,371,613) in view of Orito (US Patent 6,072,912), Sawada (US Patent 5,912,992), and Usami (US Patent 5,960,110).

Regarding claims 59 and 84: Arimoto in view of Orito and Sawada does not disclose expressly that the image sensing apparatus is connected to a printer and said reference density member is printed on said printer.

Usami discloses that the image sensing apparatus is connected to a printer (figure 5(20) and column 7, lines 28-30 of Usami) and a reference output condition, e.g. reference printing density, is printed (column 7, lines 40-43 of Usami).

Arimoto in view of Orito and Sawada is combinable with Usami because they are from the same field of endeavor, namely scanned digital tone data correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to connect said image sensing apparatus to a printer and print out a reference density, as taught by Usami, said reference density being the density of said reference density member taught by Arimoto. The motivation for doing so would have been to generate predictions for the corrected output conditions (column 7, lines 47-50 of Usami). Therefore, it would have been obvious to combine Usami with Arimoto in view of Orito and Sawada to obtain the invention as specified in claims 59 and 84.

Further regarding claims 61: Usami discloses that an image sensing apparatus (figure 5 and column 7, lines 20-23 of Usami)

is integrally configured with said printer (figure 5(20) of Usami), since said printer is used to generate the reference images based on the apparatus output conditions (column 7, lines 28-33 of Usami).

7. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arimoto (US Patent 5,371,613) in view of Orito (US Patent 6,072,912), Sawada (US Patent 5,912,992), and Skinger (US Patent 5,581,636).

Regarding claim 78: Orito discloses separately outputting image signals of a plurality of photoreceptive pixels from a plurality of output channels (column 5, lines 9-14 of Orito). Since the image data is transferred in parallel (column 5, lines 9-14 of Orito), there are a plurality of output channels used to separately output image signal of the plurality of photoreceptive pixels. A plurality of output channels is clearly at least two output channels, therefore said plurality of output channels comprises a first output channel and a second output channel. However, there is no particular order to the output of the photoreceptive pixels.

Thus, Arimoto in view of Orito and Sawada does not disclose expressly that said first output channel outputs image signals of even-numbered photoreceptive pixels, and said second output channel outputs image signals of odd-numbered photoreceptive pixels.

Skinger discloses a first output channel (figure 5(208) of Skinger) that outputs image signals of even-numbered photoreceptive pixels (column 15, lines 17-19 of Skinger), and a second output channel (figure 5(210) of Skinger) that outputs image

signals of odd-numbered photoreceptive pixels (column 15, lines 17-20 of Skinger).

Arimoto in view of Orito and Sawada is combinable with Skinger because they are from the same field of endeavor, namely digital image data capture, processing and correction. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a first output channel to output even-numbered photoreceptive pixels and a second output channel to output odd-numbered photoreceptive pixels, as taught by Skinger. The suggestion for doing so would have been that such a design is conventional in the art (column 15, lines 11-15 of Skinger). Furthermore, given the two parallel output channels taught by Orito, outputting odd pixels over one channel and even pixels over the other channel would be the most efficient way to output the pixels since any other way would require more pixel output by one of the channels as compared with the other channel. Therefore, it would have been obvious to combine Skinger with Arimoto in view of Orito and Sawada to obtain the invention as specified in claim 78.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

29 December 2005

THOMAS D.